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(9) Sharpe, R. B.—Hand-list of Birds. Vol. iii., 1901.

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3. The Rudd Exploration of South Africa.—IV.[*] List of Mammals obtained by Mr. Grant at Knysna.

By Oldfield Thomas, F.R.S., and Harold Schwann, F.Z.S.

[Received January 23, 1906.]

Owing to its possession of one of the few forest-areas in Cape Colony, Knysna, at the centre of the southern coast, has always occupied an important position in the history of South African zoology. The name occurs again and again in the literature, from the date of Sir Andrew Smith onwards, and it was therefore thought advisable that a series from so interesting a locality should be obtained by Mr. Grant as part of Mr. C. D. Rudd's magnificent exploration of South African zoology.

Mr. Grant therefore went to Knysna in December 1904, and stayed until the middle of January 1905, when he went for a month to Plettenberg Bay, in the near neighbourhood, after which he again worked at Knysna until April 23rd, when he left for the Transvaal. He was thus in the Knysna district throughout the southern summer.

The series now dealt with consists of about 150 specimens belonging to 31 species and subspecies, of which four have required descriptions as new. Of these by far the most interesting is the distinct Forest Golden Mole, named in honour of Mrs. Rudd *Amblysomus corriæ*, of which Mr. Grant obtained a good series. The species was described in an earlier communication, in order that its skull might be figured in company with that of the Zululand form discovered previously by Mr. Grant.

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[*] For Part III. see P. Z. S. 1905, vol. i. p. 254.

As usual, the whole series is and will be of the utmost value in more fully working out the details of S. African Mammalogy. Indeed, the lists we are giving of the Rudd collections as they come in are only a first commencement of the use that they will be to Science. For as they accumulate different specialists are enabled to take up group after group, and such useful revisions as that of the *Arvicanthis pumilio* group by Mr. R. C. Wroughton, or of the South African *Rhinolophi* by Mr. Knud Andersen, are thereby rendered possible. To such revisions our lists are a mere preliminary, though we hope that in addition to fulfilling the necessary work of describing the new forms they may also serve a useful purpose from a geographical point of view.

Mr. Grant's notes on the collection are as follows:—

The country around Knysna is decidedly mountainous, varying from sea-level to over 4000′ within a few miles. The highest point of the Outeniqua Mountains is 4666′.

Many miles of the country, especially to the N.E. of Knysna, are covered with dense forest, which becomes more patchy to the east and west, and in many parts is confined to the kloofs and rivers. The principal trees are yellow-wood, iron-wood, stinkwood (laurel), witel, and coomassie. In the more open places and along the banks of the main road ferns are very plentiful.

The open parts are grassy downlands, covered here and there with scrub (fine bush) and sugar-bush.

The first half of my visit was spent in the forest-region, and the latter half in the open veldt at Plettenberg Bay, which is about 20 miles east of Knysna.

1. Cercopithecus pygerythrus Cuv.

♂. 1004, 1006, 1007. ♀. 1005. Knysna.

"'Oapie' of the Dutch.

"Common; frequents the forest-country, and visits the lands and gardens near houses, doing considerable damage. Generally in parties of six or more, although I have occasionally observed a pair with their young only."—*C. H. B. G.*

2. Papio porcarius Bodd.

♀. 1024. Knysna.

♂. Skull only. Plettenberg Bay.

"Found in large troops both in the forest and on the krantzes along the coast.

"Is exceedingly wary and can seldom be obtained. At times, however, they are very bold and do considerable damage amongst the mealies and fruit."—*C. H. B. G.*

3. Rousettus collaris.

♂. 1088, 1090, 1091, 1092. ♀. 1082, 1083, 1085, 1086. Knysna.

"This Bat I found in one cave only, on the Knysna Heads, and it was there literally in hundreds. It was a sight to be remembered to see them coming out in practically one solid sheet on a shot being fired inside the cave.

"I was told that this species was also to be found at Plettenberg Bay and in the forest, but I was unable to obtain it at either place."—*C. H. B. G.*

4. Rhinolophus augur K. And.

♂. 1045. ♀. 1040, 1041, 1042, 1046. Plettenberg Bay.

"I found this species only in one of the many caves examined; it was difficult to secure, owing to the great height of the roof. It is, however, abundantly common everywhere."—*C. H. B. G.*

5. Pipistrellus kuhlii fuscatus Thos.

♀. 1027. Knysna.

"Knocked down in forest at night."—*C. H. B. G.*

6. Miniopterus dasythrix Temm.

♂. 1074, 1075, 1076. ♀. 1080. Knysna.
♀. 1039. Plettenberg Bay.

These specimens seem to represent a southern coast species different from that found in Natal and northwards to Mashonaland. They are of a very dark colour on the back, the head rather paler and greyer, and the hair seems longer than in the more northern form. Their forearms are about 45–46 mm. in length.

The males are darker than the females, the latter, instead of wholly blackish backs, having brownish backs fringed with blackish externally at the junction of the membranes with the body. Whether this sexual difference is constant we have hardly enough material to be able to state.

Temminck's *Vespertilio dasythrix** was stated to have come from the "interior of Caffraria," which would seem rather to have brought it into the range of *M. natalensis*; but as the latter is distinguished by its brown instead of blackish colour, and the type of *dasythrix* is described as being "noir mat," a description Dr. Jentink has kindly confirmed, we think the locality—at the best, very vague—should be disregarded, and the Knysna specimens referred to Temminck's species.

With regard to the size of the skull and teeth, these specimens are all quite uniform, with a greatest skull length of about 155 mm., front of upper canine to back of m^3 6·2, greatest breadth of palate including molars 6·3, front of lower canine to back of m_3 6·5. With these measurements those of Temminck's type, kindly taken for us by Dr. Jentink, closely agree, so that there is no doubt as to which of the two Knysna species should bear the name of *dasythrix*.

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* Or "*d'asythrix*," as it was misprinted in the original description (Mon. Mamm. ii. p. 268, 1840).

"Taken in cave on sea-coast."—*C. H. B. G.*

7. MINIOPTERUS FRATERCULUS, sp. n.

♂. 1073, 1077. ♀. 1079. Knysna.

Closely similar in every respect to *M. dasythrix*, agreeing with that species absolutely in colour, even to the peculiarity in the respective coloration of the two sexes. Thus the back of the male is smoky blackish, the head and whole of the under surface dark brown (darker than Prout's brown); the female is dark brown above and below, rimmed with black along the hinder part of the back. But the skull and teeth are very markedly smaller and the forearm rather shorter; though the latter is not so much shorter than in *dasythrix* as might have been expected from the difference in the skulls.

Dimensions of the type, the starred measurements taken in the flesh:—

Forearm 43·7 mm. (other specimens, ♂ 43, ♀ 44).

* Head and body 54 mm.; * tail 52; * ear 9; * tragus 4; third finger 79; lower leg and foot (c. u.) 27·5.

Skull—greatest length 14·7; basal length in middle line 11·2; breadth of brain-case 7·5; height of brain-case from basion 6·3; palate length 5·7; front of canine to back of m^3 5·5; greatest breadth of palate, including molars, 5·6; front of lower canine to back of m_3 5·7.

Type. Male. B.M. No. 5.5.7.18. Original number 1073. Taken 3 October, 1905.

"In cave on sea-coast."

Like as all the eight specimens of *Miniopterus* found at Knysna are to each other in most respects, we have come to the conclusion that they cannot be referred to one species, as in size they fall into two groups, without intermediates. We have therefore described the smaller form as new, while the larger, as already noted, may be referred to *M. dasythrix* Temm.

"Fairly common. *Miniopteri* were taken in both the caves where *Rhinolophus augur* and *Rousettus collaris* were secured."—*C. H. B. G.*

8. MYOSOREX VARIUS Smuts.

♂. 973, 982, 987, 990, 1014, 1015, 1019. Knysna.

These agree very well with those collected by Mr. Grant near Cape Town, though there is more variation among them than is usual.

"'Skearet muis' of the Dutch.

"Very common."—*C. H. B. G.*

9. CROCIDURA FLAVESCENS Geoff.

♂. 1099. Knysna.

10. AMBLYSOMUS CORRIÆ Thos.

P.Z.S. 1905, ii. p. 57.

♂. 971, 1021, 1025. ♀. 958, 968, 970, 1094. Knysna.

This distinct Golden Mole is by far the most striking discovery contained in the Knysna collection. Its skull and teeth were figured in the Zululand paper * in conjunction with those of other species then described, and a detailed account of it was given by Thomas in the paper above quoted.

In quoting † the name *Bematiscus* Cope 1892 as applicable to the *trevelyani* and *villosus* group of Golden Moles, we omitted to notice that an earlier name, *Chrysospalax* ‡ Gill 1884, had been founded on the same two species, and would therefore have to be used for the genus.

"'Swart mol' of the Dutch.

"This Mole is particularly plentiful in the forest, being the only one found there, but is absent from the neighbourhood of Plettenberg Bay."—*C. H. B. G.*

11. GENETTA TIGRINA Schreb.

♂. 960, 992, 996, 1002, 1003, 1010. ♀. 969, 977, 999, 1011. Knysna.

These specimens are very uniform in the small size of their skulls, and the reduction of the inner cusp of p^3 to a mere rudiment.

"Very common everywhere, especially in the forest. Is very destructive to poultry, but is easily trapped."—*C. H. B. G.*

12. HERPESTES CAFER Gmel.

♂. 1071. Knysna.

"'Groot Vaal Muishond' of the Dutch.

"Both nocturnal and diurnal. This Mongoose is now exceedingly rare, having been trapped and poisoned owing to its fondness for chickens. At one time they were to be seen in companies of from four to six."—*C. H. B. G.*

13. HERPESTES PULVERULENTUS Wagn.

♂. 976, 1062. ♀. 961, 1001. Knysna.

"'Blaauw or Vaal Muishond' of the Dutch.

"This Mongoose is not common; it frequents the forest and vleis."—*C. H. B. G.*

14. HERPESTES GALERA Erxl.

♂. 993, 1026. ♀. 965, 991, 1008, 1030, 1093, 1100. Knysna.

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* P. Z. S. 1905, i. pl. xvi. fig. 3.

† P. Z. S. 1905, i. p. 259.

‡ Gill, Stand. Nat. Hist. v. Mamm. p. 136 (1884).

"'Swart Muishond' of the Dutch.

"Almost exclusively nocturnal. Very common in the thick forest near damp vleis and dams, but found occasionally in the open veldt. Is said to feed on tadpoles and frogs."—*C. H. B. G.*

15. OTOMYS IRRORATUS Brts.

♂. 972, 1017. ♀. 954, 963, 985, 986, 1029. Knysna.

"'Bosch-rot' of the Dutch.

"Not very common. Frequents the undergrowth in and near the dams and vleis both in the forest and on the open veldt. Diurnal."—*C. H. B. G.*

16. ARVICANTHIS PUMILIO Sparrm.

♂. 952, 953, 955, 962, 981, 988, 1000. ♀. 1023. Knysna.

Mr. R. C. Wroughton[*] considers these specimens to be typical *A. pumilio*.

"'Streep muis' of the Dutch.

"Very common."—*C. H. B. G.*

17. ACOMYS SUBSPINOSUS Waterh.

♂. 1097. Knysna, 600′.

This species has only hitherto been recorded from the Cape Peninsula, whence Mr. Sclater mentions a specimen in the S. African Museum from Table Mountain, and Mr. Grant obtained one at Tokai, near Simonstown, at an altitude of 600′. The exact locality of the type has not been recorded.

A. subspinosus may be distinguished from other members of the genus by the structure of its molars, which are more brachyodont than in *A. selousi*, and differ in certain of the cusp details. They are also markedly narrower.

"Trapped in thick undergrowth at edge of forest.

"Not easy to secure. It appears to frequent the rough growths that spring up wherever spaces have been cleared in the forest."—*C. H. B. G.*

18. MUS RATTUS L.

♂. 1101, 1066. Knysna.

19. MUS NORVEGICUS Erxl.

♀. 1065, 1095. Knysna.

20. MUS VERREAUXI Smith.

♂. 978, 979, 980, 1012, 1016, 1018, 1020. ♀. 956, 966, 995, 1013. Knysna.

"Common. Frequents the forest, where it is fond of fallen trees, and also the vleis and grass-filled sluits of the open veldt."—*C. H. B. G.*

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[*] Ann. & Mag. N. H. (7) xvi. p. 634 (1905).

21. LEGGADA MINUTOIDES Smith.

♀. 1022. Knysna.

"Apparently rare. Only one specimen was caught."—*C. H. B. G.*

22. BATHYERGUS SUILLUS Schreb.

Mus suillus Schreb. Säug. iv. p. 715, pl. 204 B (1782).
Mus maritimus Gmel., Linn. Syst. Nat. i. p. 140 (1788).

♂. 1096, 1102, 1105. ♀. 1070, 1103, 1106. Knysna.

The researches of Mr. Sherborn * on the dates of Schreber's 'Säugthiere' have shown that the part in which the "Sandmoll" is described appeared in 1782, and therefore some years before the publication of Gmelin's name.

The reference by Gmelin to Schreber gives further evidence to the same effect.

"'Zand mol' of the Dutch.

"Very common on the west bank of the Knysna River, which appears to be the eastern boundary of the species.

"It is known locally as the 'Brenton' Mole, Brenton being the name of the farm on which it is most plentiful."—*C. H. B. G.*

23. GEORYCHUS CAPENSIS CANESCENS, subsp. n.

♂. 1108. Knysna 30′, 22 April, 1905. B.M. No. 5.8.10.14. *Type.*

A paler form of the common Blesmol, with a more strongly contrasted black head.

General colour of body decidedly greyer than in true *capensis*, the tone nearly matching "smoke-grey" on the fore-back, darkening to "drab-grey" on the hind-back; in *capensis* the back is a uniform isabella brown ("obsolete rufescens," Pallas). Nose-patch, eye-patch, and ear-patch each rather smaller than in *capensis*, the face between them nearly to the crown-patch really black, instead of only slaty blackish; crown-patch larger, very strongly contrasted. Area below ear-patch greyish white, continuous with the greyish white of the sides, throat, and belly; in *capensis* all are more or less tinged with buffy (Pallas even in 1779 speaks of the *area parotica ferruginea*).

Other characters as in *capensis*.

Dimensions of the type, an old male, with the last tooth worn:—

Head and body 156 mm.; tail 22; hind foot 26.

Skull—basal length 40; zygomatic breadth 31.

The remarkable colour-contrasts of the Blesmol are at their maximum in the Knysna form, from the lightening of the general colour of back, sides, and cheeks, combined with the darkening of the face-colour to black, so that the differences are far more conspicuous.

With regard to the dentition of *Georychus*, further consideration confirms us in the idea suggested by Thomas †, that the four cheek-teeth are not p^4, m^1, m^2, and m^3, as usually stated, but p^2,

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* P.Z.S. 1891, p. 587.

† P.Z.S. 1890, p. 419.

p^3, p^4, and m^1, the missing teeth from the set of six possessed by *Heliophobius* being the two posterior, m^2 and m^3, pushed out as it were by the powerful roots of the incisors, which impinge on them from below.

This question could, however, only be conclusively settled by a microscopic examination of fœtal or new-born specimens, in which traces of milk-teeth might be found, but in the meantime we think the correct determination will be as here stated.

"'Blesmol' of the Dutch.

"Forms regular runs and mounds similar to other Moles, but they can be distinguished by the size of the heaps thrown up."—*C. H. B. G.*

24. Georychus hottentottus Less.

♂. 1047, 1049, 1058, 1060. ♀. 1048, 1053, 1054, 1057. Plettenberg Bay.

The Mole-rats referred of recent years to *G. hottentottus* prove on closer examination to be referable to two species, a larger and a smaller, of which the former is more northern and eastern, the latter more southern and western in distribution; but whether and how far they overlap we are not at present able to say with any certainty. The difference in size is chiefly in general bulk, so that it is not easy to give any single dimension which will distinguish the two at all stages, although perhaps the alveolar length of the tooth-row (above 6·5 mm. in the larger, below in the smaller) is as convenient as any. Restricting comparison to old skulls only, the larger species may attain 36 mm. and over in basal length, the smaller rarely reaching 33.

With regard to names, it would appear that *hottentottus*, *cæcutiens*, and *ludwigi* are all applicable to the smaller species, but *holosericeus* Wagn. may be applied to the larger. Thomas has seen Wagner's three specimens, and found that the two "adults" are the large species, and the "young" is the small one. But as the measurements given by Wagner appear to have been taken on one of the larger specimens, that would fix the name on the latter. As to locality, Wagner states that one of his specimens came from Graaf Reinet, which might be taken as the typical locality.

The following are the flesh-measurements of an old male Plettenberg Bay example of *G. hottentottus*, the small species:—

Head and body 142 mm.; tail 15; hind foot 24.

The adult specimens from Plettenberg Bay are of a very light general colour, in marked contrast to those from Knysna, which we have separated under a special heading.

"Trapped in run in open country.

"The runs and mounds of this species cannot be distinguished from those of *Amblysomus corriæ*."—*C. H. B. G.*

25. Georychus hottentottus talpoides, subsp. n.

♂. 1067, 1068. Knysna.

Similar in essential characters to true *hottentottus*, but colour much darker. General colour of upper surface and sides dark slaty grey, the hairs dark slaty with fine brown tips, the whole most nearly matching Ridgway's "slate-colour" or rather darker; but the crown and a large area on the centre of the back are even darker still, the tips of the hairs being here quite black. The latter dark area extends backwards to the root of the tail. Colour of sides passing gradually into the dull slaty of the belly, which is near "slate-grey," the tips of the hairs dull buffy.

Skull apparently rather narrower and more lightly built than in specimens of *hottentottus* of corresponding age, but the age-question is in each case so difficult to settle that larger series will be necessary before a definite statement can be made on the subject. Incisors rather heavy in proportion to the skull.

Dimensions of the type:—

Head and body 126 mm.; tail 18; hind foot 21.

Skull—greatest length 34; basal length 30; condyles to tip of incisors 35·5; zygomatic breadth 22·5; interorbital breadth 8·7; length of upper molar series (alveoli) 6.

Type. Male, fully adult, but not very old. B.M. No. 5.5.7.89. Original number 1068. Collected 2 April, 1905.

This mole-coloured *Georychus* is no doubt the Knysna representative of *G. hottentottus*, darker than its allies elsewhere, as is usually the case with animals from forest-regions.

Mr. Grant's beautiful skins of this and other *Georychi* bring out clearly that the crown and dorsal area are generally darker than the rest of the body, a distinct lighter band, coloured like the sides, passing across the back at the shoulders, and separating from each other the darker crown and dorsal patches.

26. LEPUS SAXATILIS.

♂. 1056, 1061. Plettenberg Bay.
♂. 1104. Knysna.

"Fairly common on the open veldt, wherever the hill-sides are more or less stony. A fair number were observed, but mostly in the thick patches of scrub, where it is impossible to shoot them."—*C. H. B. G.*

27. HYSTRIX AFRICÆ-AUSTRALIS Peters.

A young skull. Plettenberg Bay.

28. PROCAVIA CAPENSIS Pall.

♂. 1031, 1032, 1034, 1052, 1055. ♀. 1035, 1036, 1037, 1038. Plettenberg Bay.

This series exhibits unusual variability in colour.

29. CEPHALOPHUS MONTICOLA Thunb.

♂. 1028. ♀. 1072. Knysna.

"'Blaauw bokje' or 'Numegy' of the Dutch.

"Very common."—*C. H. B. G*

30. NOTOTRAGUS MELANOTIS Thunb.

Nototragus, nom. nov., Thos. & Schw. Abstr. P. Z. S. No. 27, p. 10, Feb. 27, 1906.

♂. 1051. ♀. 1059. Plettenberg Bay.

We are glad to express our agreement with Dr. Jentink [*] in considering that the Grysbok should be generically separated from the Steenboks on account of its possession of supplementary hoofs. In the skull also it may be distinguished by its larger antecrbital pits, which are shaped very much as in *Ourebia*, with a marked ridge above them, running across the lacrymals.

But in using Sundevall's name of *Calotragus* for this animal, Dr. Jentink has not noticed that that author expressly selected his "*species prima*" (*Calotragus tragulus* = *Raphicerus campestris*) as the type, so that in no case could the name be used for the Grysbok, to which we would therefore propose to apply the above-given generic term.

With regard to the use of *Raphicerus*, we can only reiterate the opinion given in the 'Book of Antelopes,' that Blainville's figure of "*Antilope acuticornis*," on which the name hangs, is either the common Steenbok (as we suppose) or at least a species congeneric with it.

31. TRAGELAPHUS SYLVATICUS Sparrm.

♀. 1050. Knysna.

4. Notes on the Living Specimens of the Australian Lung-fish, *Ceratodus forsteri*, in the Zoological Society's Collection. By BASHFORD DEAN, Ph.D. [†]

[Received November 6, 1905.]

(Plate IX.[‡] and text-figs. 53–55.)

During a recent visit to London, September 1904, I was given the opportunity of examining specimens of *Ceratodus* in the aquarium of the Zoological Society's collections. And the following notes are presented, since they add several details to our rather scanty knowledge of the habits of this important and rare form.

The following is an abstract of the more important accounts of living *Ceratodus*:—

Habits in general.—Never goes out of water (according to all recent authors), could not be "made to progress in only a few inches of water" (Ramsay, similarly Spencer). Passive, helpless out of water (Spencer, Semon, Illidge), and dies within one or two hours (Semon), or eight to ten hours (Spencer): if kept moist, however, it will live for a long time (O'Connor), *e. g.* if wrapped in wet water-weed. In general hardy and now acclimated in a number of Australian rivers. Under usual conditions sluggish, "too lazy to get out of the way when about to be handled"

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[*] Notes Leyd. Mus. xxii. p. 33 (1900).

[†] Communicated by R. I. POCOCK, F.Z.S.

[‡] For explanation of the Plate, see p. 178.